In the Claims:

The following is a preliminary amendment to the claims in ascending order showing a detailed listing of all claims that are or were, in the application, irrespective of whether the claim(s) remain under examination in the application.

Amend Claims 7, 18 and 19, cancel claim 9 without prejudice, and add new claims 35-56 as follows:

1. (Original)

A pressure valve assembly for a no-return loop fuel delivery system having a fuel injector for operatively flowing fuel into a combustion engine and a fuel pump for flowing pressurized fuel to the injector through the pressure valve assembly, the pressure valve assembly comprising:

a body;

a pump-side port carried by the body;

an engine-side port carried by the body, wherein the pump-side port is positioned between the fuel pump and the engine-side port, the engine-side port being positioned between the pump-side port and the fuel injector;

a valve seat carried by the body and disposed between the engine-side and pump-side ports; and

a valve head biased sealingly against the valve seat when the valve assembly is in a closed position, the valve head having a first area exposed to the pump-side port and a second area exposed to the engine-side port.

2. (Original)

The pressure valve assembly set forth in claim 1 wherein the valve head is biased against the valve seat by a spring.

3. (Original)

The pressure valve assembly set forth in claim 1 comprising:

a housing engaged to the body; and

a reference chamber defined between the valve head and the housing, the reference chamber being isolated from the engine-side and pump-side ports regardless of whether the valve assembly is in the closed or an open position.

4. (Original)

The pressure valve assembly set forth in claim 3 wherein the valve head has a resilient diaphragm having a peripheral edge engaged sealably to the body.

5. (Original)

The pressure valve assembly set forth in claim 4 comprising:

a fuel chamber defined between the body and the diaphragm; and

wherein the engine-side port communicates with the pump-side port via the fuel chamber when the pressure valve assembly is in the open position, and wherein the diaphragm obstructs communication between the engine-side port and the pump-side port at the fuel chamber when the valve is in the closed position.

6. (Original)

The pressure valve assembly set forth in claim 5 comprising a spring disposed within the reference chamber and compressed resiliently between the diaphragm and the housing.

7. (Currently Amended)

The pressure ~~regulator~~ valve **assembly** set forth in claim 6 wherein the reference chamber is vented to atmospheric pressure.

8. (Original)

A no-return loop fuel delivery system for a combustion engine comprising:

a fuel pump;

a fuel rail assembly having a fuel injector for injecting fuel into the combustion engine;

a pressure control valve constructed and arranged to flow fuel between the fuel rail assembly and the fuel pump, the pressure regulator valve having a pump-side port, a rail-side port, an open position, a closed position, and a closure biasing force, the pump-side port being positioned between the fuel pump and the rail-side port, the rail-side port being positioned between the pump-side port and the fuel rail;

wherein the pressure control valve moves from the closed position to the open position to flow fuel from the fuel pump through the ports and to the fuel rail when the closure biasing force is exceeded by an opposing hydraulic force generated by fuel pressure; and

wherein the pressure control valve moves from the closed position to the open position to flow fuel from the fuel rail through the ports and back through the fuel pump when the closure biasing force is exceeded by the opposing hydraulic force generated by fuel pressure.

Claim 9 is currently cancelled.

10. (Original)

The no-return loop fuel delivery system set forth in claim 8 wherein the fuel pump is a variable speed fuel pump.

11. (Original)

The no-return loop fuel delivery system set forth in claim 10 comprising:

a pressure transducer for measuring fuel pressure within the fuel rail assembly; and

a controller for receiving and processing a pressure signal from the pressure transducer and sending a speed command signal to the variable speed fuel pump.

12. (Original)

The no-return loop fuel delivery system set forth in claim 8 wherein the pressure control valve comprises:

a body;

a resilient diaphragm having a peripheral edge engaged sealably to the body;

a fuel chamber defined between the body and the diaphragm;

a rail-side port carried by the body and communicating with the fuel chamber;

a pump-side port carried by the body and communicating with the chamber; and

wherein the rail-side port communicates with the pump-side port via the fuel chamber when the pressure control valve is in the open position, and wherein the diaphragm obstructs communication between the rail-side port and the pump-side port via the fuel chamber when the pressure control valve is in the closed position.

13. (Original)

The no-return loop fuel delivery system set forth in claim 12 comprising:

a housing engaged sealably to the peripheral edge of the diaphragm and the body;

a reference chamber defined between the housing and a reference side of the diaphragm; and

wherein the fuel chamber is defined between an opposite fuel side of the diaphragm and the body.

14. (Original)

The no-return loop fuel delivery system set forth in claim 13 comprising:

a valve seat exposed within the fuel chamber and seated sealably against the fuel side of the diaphragm when the pressure control valve is in the closed position;

wherein the fuel side of the diaphragm has a first area and a second area;

a pump sub-chamber of the fuel chamber defined between the body and the first area of the diaphragm; and

a rail sub-chamber of the fuel chamber defined between the body and the second area of the diaphragm, wherein the rail sub-chamber is isolated from the pump sub-chamber when the diaphragm sealably contacts the valve seat.

15. (Original)

The no-return loop fuel delivery system set forth in claim 14 wherein the reference chamber is vented to atmospheric pressure.

16. (Original)

The no-return loop fuel delivery system set forth in claim 14 wherein the valve seat is annular in shape and the rail sub-chamber is disposed radially inward of the valve seat.

17. (Original)

The no-return loop fuel delivery system set forth in claim 16 wherein the body has a cylindrical shoulder disposed within the fuel chamber and carrying the annular valve seat.

18. (Currently Amended)

A pressure valve assembly for a no-return loop fuel delivery system having a fuel injector for operatively flowing fuel into a combustion engine and a fuel pump for flowing pressurized fuel to the injector through the pressure valve assembly, the pressure valve assembly comprising;

a body;

a biased closed pressure relief valve carried by the body;

a flow check valve carried by the body and orientated in a parallel flow configuration with the pressure relief valve;

a pump-side channel defined by the body and communicating with the pump;

an engine-side channel defined by the body and communicating between the fuel injector and the pump-side channel when the pressure relief valve is open;

wherein the fuel injector communicates with the pump via the communication of the pump-side channel with the engine-side channel when the pressure relief valve is open;

an inlet passage defined by the body and communicating with the pump;

an outlet passage defined by the body and communicating with the fuel injector; **and**

wherein the fuel injector communicates with the pump via the communication of the inlet passage with the outlet passage when the flow check valve is open.

19. (Currently Amended)

The pressure valve assembly set forth in claim 18 comprising:

a valve seat of the pressure relief valve carried by the body and disposed between the engine-side and pump-side channels;

a valve head of the pressure relief valve having a fuel side biased sealingly against the valve seat when the pressure relief valve is in a closed position and a reference side exposed to atmospheric pressure, the fuel side having a first area exposed to the pump-side channel and a second area exposed to the engine-side channel; **and**

wherein the pressure relief valve will move from the closed position to an open position when a predetermined force is exceeded and generally measured by the product of area

of the first area times fuel pressure within the rail-side channel plus the product of area of the second area times fuel pressure within the pump-side channel.

20. (Original)

The pressure valve assembly set forth in claim 19 wherein the flow check valve is constructed and arranged to open when fuel pressure in the inlet passage exceeds fuel pressure in the outlet passage by a predetermined pressure differential.

21. (Original)

The pressure valve assembly set forth in claim 20 wherein the predetermined pressure differential of the flow check valve is substantially less than a predetermined pressure exposed at the second area of the fuel side of the valve head of the pressure relief valve and the reference side of the valve head of the pressure relief valve is exposed to atmospheric pressure.

22. (Original)

The pressure valve assembly set forth in claim 21 wherein the head of the pressure relief valve has a diaphragm which carries the fuel and reference sides.

23. (Original)

The pressure valve assembly set forth in claim 22 wherein the pressure relief valve and the flow check valve are each biased closed by compression springs.

24. (Original)

The pressure valve assembly set forth in claim 21 wherein the pressure needed to open the pressure relief valve and to the second area of the fuel side of the valve head of the pressure relief valve when the reference pressure and the fuel pressure at the injector are at

atmospheric pressure is substantially near the operating pressure of the fuel injector when the engine is operating at idle conditions.

25. (Original)

The pressure valve assembly set forth in claim 23 wherein the flow check valve is a poppet valve.

26. (Original)

The pressure valve assembly set forth in claim 23 wherein the flow check valve is a ball valve.

27. (Original)

A no-return loop fuel delivery system for a combustion engine comprising:

a variable speed fuel pump;

a fuel rail connected to a fuel injector for injecting fuel into the combustion engine;

a pressure relief valve having a valve head having a reference side exposed to a reference pressure and a fuel side having a first area exposed to the fuel rail and a second area exposed to the fuel pump when the pressure relief valve is in a closed position; and

wherein the pressure relief valve moves to an open position for flowing fuel in either direction between the fuel pump and the fuel rail when the fuel pressure exposed to the second area of the fuel side of the valve head exceeds slightly less than the operating fuel idle pressure of the engine when the pressure relief valve is closed and the reference side is exposed to reference pressure and the fuel pressure in the fuel rail is at substantially near reference pressure.

28. (Original)

The no-return loop fuel delivery system set forth in claim 27 comprising:

a biased closed flow check valve orientated between the fuel rail and the fuel pump for bypassing fuel flow around the pressure relief valve; and

wherein the check valve is constructed and arranged to open when fuel pressure at the fuel pump exceeds fuel pressure at the fuel rail by a predetermined pressure differential.

29. (Original)

The no-return loop fuel delivery system set forth in claim 28 comprising:

a resilient diaphragm of the valve head of the pressure relief valve carrying the fuel side and reference side; and

a compression spring bearing upon the reference side for biasing the pressure relief valve in the closed position.

30. (Original)

The no-return loop fuel delivery system set forth in claim 29 wherein the check valve is a spring biased poppet valve.

31. (Original)

The no-return loop fuel delivery system set forth in claim 30 wherein the pressure relief valve will move from the closed position to an open position when a predetermined force exerted by the spring of the pressure relief valve plus the product of area of the reference side times the reference pressure, is exceeded by the product of area of the first area times fuel pressure at the rail plus the product of area of the second area times fuel pressure at the pump.

32. (Original)

The no-return loop fuel delivery system set forth in claim 31 wherein the predetermined pressure differential of the check valve is substantially less than a predetermined pressure differential across the second area of the fuel side of the diaphragm and the reference side of the diaphragm.

33. (Original)

The no-return loop fuel delivery system set forth in claim 31 wherein the pressure differential across the second area of the fuel side of the diaphragm and the reference side of the diaphragm is substantially near the operating pressure of the fuel injector when the engine is operating at idle conditions.

34. (Original)

The no-return loop fuel delivery system set forth in claim 17 comprising a flow check valve orientated in a parallel flow configuration with the pressure control valve for flowing fuel from the fuel pump to the fuel rail when a predetermined fuel pressure differential across the flow control valve is reach and the pressure control valve is in the closed position.

35. (New)

A no-return loop fuel delivery system for a combustion engine comprising:

a fuel pump;

a fuel rail assembly having a fuel injector for injecting fuel into the combustion engine;

a pressure regulator valve constructed and arranged to flow fuel between the fuel rail assembly and the fuel pump, the pressure regulator valve having a pump-side port, a rail-side port, an open position, a closed position, and a closure biasing force, the pump-side port being positioned between the fuel pump and the rail-side port, the rail-side port being positioned between the pump-side port and the fuel rail;

wherein the pressure regulator valve moves from the closed position to the open position to flow fuel from the fuel pump through the ports and to the fuel rail when the closure biasing force is exceeded by an opposing hydraulic force generated by fuel pressure;

wherein the pressure regulator valve moves from the closed position to the open position to flow fuel from the fuel rail through the ports and back through the fuel pump when the closure biasing force is exceeded by the opposing hydraulic force generated by fuel pressure; and

wherein a one-way flow check valve is not constructed and arranged to operate between the fuel rail assembly and the fuel pump.

36. (New)

The no-return loop fuel delivery system set forth in claim 35 wherein the fuel pump is a variable speed fuel pump.

37. (New)

The no-return loop fuel delivery system set forth in claim 36 comprising:

a pressure transducer for measuring fuel pressure within the fuel rail assembly; and

a controller for receiving and processing a pressure signal from the pressure transducer and sending a speed command signal to the variable speed fuel pump.

38. (New)

The no-return loop fuel delivery system set forth in claim 35 wherein the pressure regulator valve is of a diaphragm-type.

39. (New)

The no-return loop fuel delivery system set forth in claim 38 wherein the pressure regulator valve comprises:

a body;

a resilient diaphragm having a peripheral edge engaged sealably to the body;

a fuel chamber defined between the body and the diaphragm;

a rail-side port carried by the body and communicating with the fuel chamber;

a pump-side port carried by the body and communicating with the chamber; and

wherein the rail-side port communicates with the pump-side port when the regulator valve is in the open position, and wherein the diaphragm obstructs communication between the rail-side port and the pump-side port within the fuel chamber when the valve is in the closed position.

40. (New)

The no-return loop fuel delivery system set forth in claim 39 comprising:

a housing engaged sealably to the peripheral edge of the diaphragm and the body;

a reference chamber defined between the housing and a reference side of the diaphragm; and

wherein the fuel chamber is defined between an opposite fuel side of the diaphragm and the body.

41. (New)

The no-return loop fuel delivery system set forth in claim 40 comprising:

a spring disposed within the reference chamber and compressed resiliently between the diaphragm and the housing; and

wherein the closure biasing force is the force of the spring plus the product of the reference chamber pressure times the area of the exposed reference side of the diaphragm.

42. (New)

The no-return loop fuel delivery system set forth in claim 41 comprising:

a valve seat exposed within the fuel chamber and seated sealably against the fuel side of the diaphragm when the pressure regulator valve is in the closed position;

the fuel side of the diaphragm having a first area and a second area;

a pump sub-chamber of the fuel chamber defined between the body and the first area of the diaphragm; and

a rail sub-chamber of the fuel chamber defined between the body and the second area of the diaphragm, wherein the rail sub-chamber is isolated from the pump sub-chamber when the valve seat is engaged to the diaphragm.

43. (New)

The no-return loop fuel delivery system set forth in claim 42 wherein the reference chamber is vented to atmospheric pressure.

44. (New)

The no-return loop fuel delivery system set forth in claim 42 wherein the first area is larger than the second area.

45. (New)

The no-return loop fuel delivery system set forth in claim 42 wherein the valve seat is annular in shape and the rail sub-chamber is disposed radially inward of the valve seat.

46. (New)

The no-return loop fuel delivery system set forth in claim 45 wherein the body has a cylindrical shoulder disposed within the fuel chamber and carrying the annular valve seat.

47. (New)

A pressure regulator valve for a no-return loop fuel delivery system having a fuel injector for operatively flowing fuel into a combustion engine and a fuel pump for flowing pressurized fuel to the injector through the pressure regulator valve, the pressure regulator valve comprising:

a body;

a pump-side port carried by the body;

an engine-side port carried by the body, wherein the pump-side port is positioned between the fuel pump and the engine-side port, the engine-side port being positioned between the pump-side port and the fuel injector;

a valve seat carried by the body and disposed between the engine-side and pump-side ports;

a valve head biased sealingly against the valve seat when the valve is in a closed position thereby isolating the engine-side port from the pump-side port, the valve head having a first area exposed to the pump-side port and a second area exposed to the engine-side port;

a housing engaged to the body; and

a reference chamber defined at least in part by the valve head and the housing, the reference chamber being isolated from the engine-side and pump-side ports regardless of whether the valve is in the closed or open position.

48. (New)

The pressure regulator valve set forth in claim 47 wherein the valve head is biased against the valve seat by a spring.

49. (New)

The pressure regulator valve set forth in claim 47 wherein the valve head has a resilient diaphragm having a peripheral edge engaged sealably to the body.

50. (New)

The pressure regulator valve set forth in claim 49 comprising:

a fuel chamber defined between the body and the diaphragm; and

wherein the engine-side port communicates with the pump-side port via the fuel chamber when the regulator valve is in the open position, and wherein the diaphragm obstructs communication between the engine-side port and the pump-side port within the fuel chamber when the valve is in the closed position.

51. (New)

The pressure regulator valve set forth in claim 50 comprising a spring disposed within the reference chamber and compressed resiliently between the diaphragm and the housing.

52. (New)

The pressure regulator valve set forth in claim 51 wherein the reference chamber is vented to atmospheric pressure.

53. (New)

A pressure control valve for a fuel delivery system having a fuel injector for operatively flowing fuel into a combustion engine and a fuel pump for flowing pressurized fuel to the injector and to the pressure valve assembly, the pressure valve assembly comprising:

a body;

a first port carried by the body;

a second port carried by the body and orientated communicatively between the fuel injector and the second port;

a valve seat carried by the body and disposed between the first and second ports; and

a valve head biased sealingly against the valve seat when the pressure control valve is in a closed position, the valve head having a first area exposed to the first port and defined by the valve seat when the valve is closed and a second area exposed to the second port and defined by the valve seat when the valve is closed and wherein the first port communicates with the second port when the valve is open.

54. (New)

The pressure control valve set forth in claim 53 comprising:

a first side of the valve head exposed to a reference pressure;

an opposite second side of the valve head carrying the first and second areas; and

a peripheral edge of the valve head engaged sealingly to the body.

55. (New)

The pressure control valve set forth in claim 54 wherein the valve head is a resilient diaphragm.

56. (New)

The pressure control valve set forth in claim 55 wherein the first area is defined radially between the second area and the peripheral edge.